

**Research Paper** 

Science

# Evaluation of Orange Fleshed Sweet Potato (Ipomea Batatas L.) Entries With A View to Introduce in North Konkan Conditions of Maharashtra State

K.V. Malshe

Jr. Horticulturist, Mango Research Sub-Centre, Rameshwar, Tal. Deogad, Dist. Sindhudurg 416806 (Maharahstra)

ABSTRACT Sweet potato (Ipomea batatas L.) a 'Poor person's crop' in the recent years is being recognized as a crop with potential for high productivity and energy output. It is grown over a wide range of environmental conditions throughout the world and it has capacity to produce the highest amount of calories per unit area and time as compared to cereals and other root and tuber crops. The demand for sweet potato is increasing day by day and different genotypes in respect of tuber colour, taste, etc are introduced. Considering this fact, the present investigation was carried out to evaluate the performance of different orange fleshed sweet potato types under north Konkan conditions of Maharashtra state. The trial was conducted at two locations, one at university farm and other at farmer's fields. Five varieties viz; 362 – 7, SV – 98, CIPSWA – 2, Kamal Sundari and Konkan Ashwini (Check) were evaluated. There was significant difference in the yield. The maximum yield (20.722 T/Ha.) was recorded by the type Kamal Sundari followed by Konkan Ashwini (18.741 T/Ha.). The infestation of sweet potato weevil was maximum in the orange fleshed sweet potato as compare to check (Konkan Ashwini). The maximum average organoleptic score (8.66) was reported by type Kamal Sundari and Konkan Ashwini

## KEYWORDS : Orange Flesh sweet potato, yield, sweet potato weevil, organoleptic score

Sweet potato (Ipomea batatas L.) a 'Poor person's crop' is one of the world's highest yielding crop and is grown over a wide range of environmental conditions throughout the world. It has capacity to produce the highest amount of calories per unit area and time as compared to cereals and other root and tuber crops. Among the tuber crops, it ranks third in terms of its contribution to agricultural economy in India. In the recent years is being recognized as a crop with potential for high productivity and energy output (Haldavnekar et. al., 2009). It has capacity to produce the highest amount of calories per unit area and time as compared to cereals and other root and tuber crops. In 2009-10, the area under sweet potato cultivation in India was 1.19 lakh hectares with production of 10.95 lakh MT and the productivity was 9.205Mt/Ha. There is a demand for sweet potato and lack of tuber storage facilities. The sweet potato weevil is the most serious and ubiquitous pest of sweet potato (Palaniswami and Chattopadhya, 2005) which causes yield loss indirectly by damaging the vines especially at the collar region. The pest is associated with the crop wherever it is grown and can breed and multiply throughout the year. It makes tubers unsuitable for consumption. There is genetic diversity in the sweet potato and the demand is more to red coloured tubers than white coloured tubers. It might be changed from locality. In the recent years, the orange fleshed varieties were developed. As there is increasing and year round demand of sweet potato, systematic researches on all aspects are essential. Considering its huge potential in Konkan region for its cultivation, the present investigation was carried out to evaluate the performance of different orange fleshed sweet potato entries under north Konkan conditions of Maharashtra state. The trial was conducted at two locations, one at university farm and other at farmer's fields.

### MATERIALS AND METHODS

Five entries of sweet potato viz; 362 - 7, SV - 98, CIPSWA - 2, Kamal Sundari and Konkan Ashwini (Check) were collected form germplasm available with the All India Co-ordinated Research Project on Tuber crops, Wakawali Centre. The experiment was conducted in two sets, one at Vegetable Improvement Scheme Farm, Agril. Research Station, Palghar, Dist. Thane and other at farmer's, field during rabi season of 2010-11. The experiment was laid out in Randomized Block Design with four replications. Ploughing brought the experimental land to fine tilth with tractor drawn iron plough followed by clod crushing and harrowing. As per the recommendation, basal dose of 30 kg Nitrogen, 60 kg Phosphorus, 60 kg Potash along with 25 tones FYM per hectare were applied at the time of land preparation. The ridges and furrows were made at the spacing of 60 cm. and healthy 3 to 4 nodes cuttings from top and middle portion of vine were planted at 20 cm spacing on each ridge. 250 cutting of each variety were planted in each replication. The same set was replicated on farmer's field. The remaining 60 kg Nitrogen was given in two split doses as top dressing one and two months after planting . All recommended intercultural practices were followed. The yield of each entry was recorded and the infestation of sweet potato weevil was also recorded. The tubers of each variety was examined for their

organoleptic evaluation for assessing the colour, flavour and texture (Amerine, *et al.* 1965)The data were statistically analyzed by the method suggested by Panse and Sukhatme (1985).

#### **RESULTS AND DISCUSSION**

The yield data both at Vegetable Improvement Scheme farm and farmers field are given in Table 1. It is revealed from the data, that there was significant difference in the yield of orange fleshed sweet potato. The maximum yield (20.722 T/Ha.) was recorded by the entry Kamal Sundari followed by check, Konkan Ashwini (18.741 T/Ha.). The similar trends were reported by Jadye *et al.* (2012). The infestation of sweet potato weevil was also maximum in the orange fleshed sweet potato as compare to check (Konkan Ashwini). Many workers such as Singh and Mishra (1975), Lokhande (2003) reported similar kind of results in sweet potato in past.

The score of the organoleptic evaluation was given in the Table 2. It is revealed from the table 2, that there was no significant differences in the organoleptic score in terms of colour, texture and flavour. The maximum average organoleptic score (8.66) was reported by type Kamal Sundari and Konkan Ashwini.

Considering the field performance of tested entries, the orange fleshed Kamal Sundari entry performed better and will be suitable for cultivation in the north Konkan coastal region of Maharashtra with or instead of Konkan Ashwini variety.

Tabl	e 1. Yield	perfor	mance	of orang	ge fleshe	ed swe	et po-
tato	varieties	under	north	konkan	coastal	zone	(2010-
11)							

		Yield kg/250 vines)		Yield (T/ ha.)			tion of ootato (%)
Sr. No.	Variety	VIS Farm	Farmers field	VIS Farm	Farmers field	Mean	Infesta sweet p weevil
1.	362 - 7	52.50	52.50	16.800	16.800	16.800	20.00 (26.56)*
2.	SV – 98	51.23	53.63	16.394	17.162	16.778	23.50 (29.00)
3.	CIPSWA – 2	45.06	50.75	14.419	16.240	15.330	18.00 (25.10)
4.	Kamal Sundari	64.76	64.75	20.723	20.720	20.722	13.50 (21.56)
5.	Konkan Ashwini	59.63	57.50	19.082	18.400	18.741	5.50 (13.56)
	SE +	1.49	2.49	-	-	-	1.05
	C.D. at 5%	4.60	7.68	-	-	-	3.25
12	* Finance in the newspheric indicates the service and						

(\* Figures in the parenthesis indicates the corresponding arc sine transformed values)

Volume-3, Issue-8	August-2014 • ISSN No 2277 - 8160

Sr. No.		Organol	Average		
	Variety	Colour	Texture	Flavour	score
1.	362 - 7	7.5	8.5	8.0	8.33
2.	SV – 98	7.5	8.0	8.5	8.00
3.	CIPSWA – 2	7.5	8.5	8.0	8.00
4.	Kamal Sundari	8.5	8.5	9.0	8.66
5.	Konkan Ashwini	9.0	8.5	8.5	8.66
	SE +	0.30	0.23	0.22	-
	C.D. at 5%	N.S.	N.S.	N.S.	-

#### Table 2. Organoleptic evaluation of sweet potato types



Amerine, M. A., R. M. Pangborn and E. B. Rocssler (1965). Principlrs of Sensory Evaluation of Food. Academic Press, London. | Haldavnekar, P. C., G. D. Joshi, S. G. Bhave, H. R. Nadkarni, P. C. Mali and S. S. Sawant (2009). Assessment of genotypes for yield, yield and yield contributing characters and nutritive traits in sweet potato in coastal region of Maharashtra. J. Indian Soc. Coastal agric. Res., 27(1), 46-49. Jadye, A. T., N. V. Mhaskar, P. M. Haldankar and U. V. Mahadkar (2012). Evaluation of orange fleshed sweet potato entries in rainfed situation under lateritic soils of konkan. XV Vasantrao Naik Memorial National Agriculture Seminar on Technologies for sustainable horticulture in rainfed areas, Jan 20-21, 2012 Abstracts p.p. 69-70. | Lokhande, A. S. (2003). Genetic variability and diversity studies in sweet potato (Ipomea batatas (L.) Poir). Unpublished M. Sc. (Agri.) thesis, Dr. B. S. Konkan Krishi Vidyapeeth, Dapoli, Maharashtra, India. | Palaniswami, M. S., and Chattopadhya, S. (2005). Ecology based integrated management of the sweet potato weevil in India. In proceedings of the IInd International symposium on sweet potato and cassava : Innovative technologies for commercializing. Kaula Lampur, Malysia, June 14-17, 2005. | Panse, V.G and P.V. Sukhatme, (1985). Statistical methods for agricultural workers, Pub ICAR, New Delhi. 145-148. | Singh, J. R. and Mishra, D. N. (1975). Genetic variability in sweet potato (Ipomea batatas L. Poir). Journal of Root Crops 1:90